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10/784,866	02/23/2004	Darren R. Schmidt	5150-81401	9484
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EXAMINER				
KAWSAR, ABDULLAH AL				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/784,866

**Applicant(s)**

SCHMIDT ET AL.

**Examiner**

ABDULLAH AL KAWSAR

**Art Unit**

2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 and 28-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 and 28-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. Claims 1-25 and 28-30 are pending.

***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/28/2008 has been entered.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-25 and 28-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. The following claim languages are not clearly understood and indefinite:
  - i. Claim 1, it is not clear if the steps in line 21-23 is the continuation steps of line 20 to perform the exit procedure or replaying the steps.
  - ii. Claims 28 and 29 has similar deficiency as of claim 1 above.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-8, 14-20, 22-25 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over “LabVIEW Real-Time Module User Manual”(Labview), in view of Fuchs et al.(Fuchs) US Patent No. 5530802.

7. As per claim 1, Labview teaches the invention substantially as claimed including a computer-accessible memory medium that stores program instructions for performing time-bounded execution of a program, where the program instructions are executable by a processor to perform (page 4-4, “Dividing Tasks to Create Deterministic Multithreaded Applications” lines 1-12, “Deterministic control applications depend on time-critical tasks to.....Place file I/O operations in the normal priority VI”):

initiating a timed program execution process, wherein the timed program execution process is operable to execute a program in a time-bounded manner (page 4-8, “Creating a User Interface for RT Target VIs” lines 1-5, “Use the RT Communication Wizard to create a user interface for..... • Time-Critical VI—Contains the time-critical tasks.”);

initiating a timeout process, wherein the timeout process is operable to preempt the execution process to interrupt execution of the program( page 4-4, “Dividing Tasks to Create

Deterministic Multithreaded Applications” lines 13-17, “The time-critical priority VI receives ..... The process repeats until all tasks complete.”);

configuring a timeout event, wherein the timeout event is an event indicating a timeout condition for the program (page 5-15, “Inactivity Watchdog” lines 1-4 “Some RT Series devices have hardware watchdogs that you can configure.....counter to count up to the defined timeout.”);

the timed program execution process performing a time-bounded execution of the program (page 4-1, “Programming for Determinism”, lines 1-6, “The first thing to consider when implementing a real-time system with..... this chapter to achieve high levels of determinism in VIs.”), comprising:

b) if the timeout event has not occurred, executing the program, wherein, during said executing, if the timeout event occurs (page 5-6, “Counter Control VI”, lines 10-14, “You can use the Counter Control VI and set the control code input to wait,..... you must provide a timeout value in case expected source pulses do not occur.”),

d) the timed program execution process resuming executing the program based on the rollback state with a timeout condition in preparation to perform a program exit procedure (page 5-16, lines 1-8, “Many real-time applications separate time-critical tasks into a separate VI,..... returning to a known state, and continuing as usual.”).

e) performing a program exit procedure (page 5-16, lines 1-8, “Many real-time applications separate time-critical tasks into a separate VI,..... returning to a known state, and continuing as usual.”);

disabling the timeout event (page 4-5, “Cooperatively Yielding Time-Critical V/ Execution”);

terminating the timeout process (page 5-16, lines 4-8, “For example, you can check if the RT FIFO is unexpectedly empty..... returning to a known state, and continuing as usual.”); and

terminating the timed program execution process( page 5-14, “Using Watchdogs in Applications”, lines 1-6, “In control applications, it might be necessary to respond to a failure or.....failure must be handled in the same manner.”).

Labview does not specifically disclose a) determining and storing a rollback state for the program; c) the timeout process setting the timed program execution process to the rollback state, and disabling the timeout event.

However, Fuchs teaches determining and storing a rollback state for the program (col 2, lines 51-56);

c) the failed process setting the timed program execution process to the rollback state, and disabling the timeout event (col 3, lines 24-30); and

8. It would have been obvious to a person of ordinary skill in art at the time of invention was made to incorporate the teaching of Fuchs into the method of Labview to have application execution with rollback state for any failure. The modification would have been obvious because one of the ordinary skills of the art would want to be able to utilize the CPU performance by using the rollback state or any application that has failed or timeout for any event.

9. As per claim 2, Fuchs teaches e) further comprises: clearing the rollback state (col 27, lines 21-30).

10. As per claim 3, Labview teaches the program instructions are further executable to perform: iteratively performing said time-bounded execution of a plurality of programs (page 4-1, "Overview of Multithreaded Applications" lines 1-5, "Most computers have only one processor, so tasks execute one at a time.....have multiple applications running simultaneously."; page 4-3, lines 1-7, "In addition to the five priority levels listed above, you can set VIs to.....VI is at the subroutine priority level.").

11. As per claim 4, Labview teaches said iteratively performing comprises: for each of the plurality of programs, performing a) through e) (.": page 4-3, lines 1-7, "In addition to the five priority levels listed above, you can set VIs to.....VI is at the subroutine priority level.").

12. As per claim 5, Fuchs teaches wherein e) further comprises: if the timeout event has occurred, storing an indication of a timeout condition(col 7, lines 7-17; lines 63-67 through col 8, lines 1-16); and

Fuchs does not specifically disclose wherein the timed program execution process performing a time-bounded execution of the program comprises: performing a) through e) if the timeout condition is not indicated.

However Labview teaches wherein the timed program execution process performing a time-bounded execution of the program comprises: performing a) through e) if the timeout condition is not indicated (page 5-6, "Counter Control VI", lines 10-14, "You can use the Counter Control VI and set the control code input to wait,..... you must provide a timeout value in case expected source pulses do not occur.").

13. As per claim 6, Labview teaches the program instructions are further executable to iteratively perform:

setting a timeout event(page 4-1, "Programming for Determinism", lines 1-6, "The first thing to consider when implementing a real-time system with..... this chapter to achieve high levels of determinism in VIs.");

the timed program execution process performing a time-bounded execution of the program (page 4-8, "Creating a User Interface for RT Target VIs" lines 1-5, "Use the RT Communication Wizard to create a user interface for..... • Time-Critical VI—Contains the time-critical tasks."); and

disabling the timeout event(page 4-5, "Cooperatively Yielding Time-Critical VI Execution").

14. As per claim 7, Labview teaches wherein the timeout process executes at a first priority level, and wherein the program instructions are further executable to perform: setting an execution priority level of the timed program execution process to a second priority level,



wherein the second priority level is below the first priority level (page 4-2, "Scheduling Threads" and "Assigning Priority").

15. As per claim 8, Labview teaches said performing a time-bounded execution of the program further comprises: storing an original execution priority level of the timed program execution process prior to said setting the execution priority level of the timed program execution process( page 4-2, "Creating Multithreaded Applications in LabVIEW", lines 1-7 ); and

wherein e) further comprises: restoring the execution priority level of the timed program execution process to the original execution priority level (page 4-2, "Scheduling Threads" and Assigning Priority").

16. As per claim 14, Labview teaches said initiating the timeout process is performed during said executing (page 4-5, "Cooperatively Yielding Time-Critical VI Execution").

17. As per claim 15, Labview teaches the program comprises one or more sub-programs(page 4-1, "Overview of Multithreaded Applications" lines 1-5, "Most computers have only one processor, so tasks execute one at a time.....have multiple applications running simultaneously."); and

wherein b) further comprises: performing a) through e) for each of the one or more sub-programs (page 4-3, lines 1-7, "In addition to the five priority levels listed above, you can set VIs to.....VI is at the subroutine priority level.").

18. As per claim 16, Labview teaches said initiating the timeout process is performed by the timed program execution process (page 4-8, "Creating a User Interface for RT Target VIs" lines 1-5, "Use the RT Communication Wizard to create a user interface for..... • Time-Critical VI—Contains the time-critical tasks."; page 4-5, "Cooperatively Yielding Time-Critical VI Execution").

19. As per claim 17, Fuchs teaches the rollback state comprises: a rollback point, comprising an execution point in the program, and an execution state of the timed program execution process at the rollback point (col 2, lines 57-67).

20. As per claim 22, Labview teaches the program comprises a machine vision application (page 1-2, "RT Series Plug-In Devices" lines 1-8, "The RT Series plug-in devices are plug-in PCI/PXI devices with embedded.....data acquisition daughterboard for plug-in devices."; page 1-3).

21. As per claim 23, Labview teaches the program comprises a numerical analysis application (page 4-3, "Functional Global Variable").

22. As per claim 24, Labview teaches the program comprises a text-based program (page 6-3, "Avoiding Contiguous Memory Conflicts" lines 1-2, "LabVIEW handles many of the memory details that you normally deal with in a conventional, text-based language.").

23. As per claim 25, Labview teaches the program comprises a graphical program (page 1-1, "Introduction", lines 7-9, "Avoiding Contiguous Memory Conflicts The Real-Time Module combines LabVIEW graphical programming with the power of RT Series hardware, enabling you to build deterministic real-time systems."

24. As per claim 28-30, they have similar limitations of claim 1 above. Therefore, they are rejected under the same rationale as of claim 1 above.

25. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over "LabVIEW Real-Time Module User Manual"(Labview), in view of Fuchs et al.(Fuchs) US Patent No. 5530802, and further in view of Chamberlain (Chamberlin) US Patent No. 6438749.

26. As per claim 21, Labview and Fuchs do not specifically disclose receiving a disable request from the program to disable the rollback state; disabling the rollback state in response to said disable request; receiving an enable request from the program to enable the rollback state; enabling the rollback state in response to said enable request; and updating the rollback state for the program.

27. However, Chamberlain teaches wherein said executing the program further comprises(c) receiving a disable request from the program to disable the rollback state (col 16, lines 16-28);

disabling the rollback state in response to said disable request (col 16, lines 37-42);  
receiving an enable request from the program to enable the rollback state (col 3, lines 1-2);  
enabling the rollback state in response to said enable request (col 3, lines 9-12); and  
updating the rollback state for the program (col 15, lines 65-67 through col 16, lines 1-5).

28. It would have been obvious to a person of ordinary skill in art at the time of invention was made to incorporate the teaching of Chamberlin in to the combined method of Fuchs and Labview to be able to enable or disable rollback option on any application. The modification would have been obvious because one of the ordinary skills of the art would want to be able to enable or disable rollback options on a system when the system to be able to bypass a critical halt or not having enough resources for rollback state.

***Allowable Subject Matter***

29. Claims 9-13 and 18-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten to overcome the rejections(s) under 35 U.S.C. 112, 2<sup>nd</sup> paragraph, set forth in this office action and including all of the limitations of the base claim and any intervening claims.

***Response to Amendment***

30. This action is responsive to the amendment filed on August 28<sup>th</sup>, 2008. Claims 1-25 and 28-30 are pending. Claims 1, 28, 29 and 30 are amended herein. It is being noted that claims 28

do not appear to be the “Previously Presented” claim as indicated by the status identifier. The examiner will treat that claim as “Currently Amended” rather than “Previously Presented”. In their next submission the applicants are encouraged to verify that the status identifiers of all the claims are correct.

***Response to Arguments***

31. Applicant's arguments with respect to claim(s) have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ABDULLAH AL KAWSAR whose telephone number is (571)270-3169. The examiner can normally be reached on 7:30am to 5:00pm, EST.

33. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng Ai T. An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

34. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Primary Examiner, Art Unit 2194

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